UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,064	03/08/2006	Ian D Henning	36-1967	2454

23117 7590 09/23/2008

NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
NGUYEN, PHUNG HOANG JOSEPH	
ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
09/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/571,064	HENNING ET AL.	
	Examiner	Art Unit	
	PHUNG-HOANG J. NGUYEN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9 recites "…the output wavelength **of at** the electronic conversion means…". This appears to be a grammatical error. Correction or clarification is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 and 11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Dodds et al (US Pub 2002/0031113).

As to claims 1 and 15, Dodds teaches a communications network ***(fig. 1)*** comprising:

a communications station ***(POTS switching system 26 of network 29);***

electrical transmission lines ***(distribution cable 13 via the terminal blocks 18 and 19 of field cabinet 17. Also see fig. 2 for detail of 17)*** connecting the communications station to user terminations ***(customer locations 10, 11 and 12 of fig. 1);***

data transmission means ***(fig. 4 shows the transmission operation in general. Hardware used in this operation considered the transmission means, par. 0120-0121);***

optical carriers ***(the function of optical transmitter 45 and optical receiver 46 of fig. 1 or optical transceiver of fig. 4 indicates the presence of a carrier)*** connecting the data transmission means to at least one interface, located between the communications station and user terminations ***(field cabinet 17 is between the communications station and the user terminations),*** for converting optical signals from an optical carrier into electrical signals for transmission over one at least of the electrical transmission lines ***(optical transceiver converts optical to electrical signal, par. 0122. Also see figs. 2 and 4);***

wherein, for each of a plurality of user terminations requiring data service:

(a) a dedicated one of said optical carriers is provided ***(the function of optical transmitter 45 and optical receiver 46 of fig. 1 or optical transceiver of fig. 4 indicates the presence of a carrier).***

(b) the data transmission means ***(par. 0120-0121)*** comprises modulation means ***(components 42 and 48 of fig. 2 used for conversion)*** for converting input data signals into output signals suitable for transmission over the electrical transmission lines, followed by means for modulating the output signals onto an optical signal ***(the inputs to the programmable logic block are the data from the AFEs and the data from the serializer/de-serializer unit 73. The outputs***

are the data to be sent to the serializer/de-serializer unit 73 and the data to be sent to the AFE, see entire document, specifically par. 0126).

(c) the interface has optoelectrical conversion means ***(optical transceiver of fig. 4 or optical receiver 46 of fig. 2)*** arranged to recover said output signals and feed them to the electrical transmission line serving the relevant user termination ***(see entire document, specifically pars. 0127 for the transmission of the signal).***

As to claims 2-3, Dodds teaches data reception means ***(same as optical transceiver of fig. 4)***, connected at the communications station to the electrical transmission lines for receiving data from the user terminations ***(field cabinet 17 is between the communications station and the user terminations. See claim 1 also)***. Furthermore, Dodd teaches data reception means ***(same as optical transceiver of fig. 4)***, connected to the optical carriers for receiving data from the user terminations, wherein the interface includes electrooptical conversion means ***(optical transceiver of fig. 4 or optical transmitter 45 of fig. 2)*** arranged to receive signals from the electrical transmission lines and feed them to the optical carrier serving the relevant user termination ***(see entire document, specifically pars. 0127 for the transmission of the signal. Also see claim 1).***

As to claims 11-12, Dodds teaches the optical carriers are each formed by a respective wavelength channel. Furthermore Dodds teaches some of the wavelength channels are carried over a common optical medium, preferably over a common optical fibre ***(this high-speed serial data is then converted into an***

optical signal by the optical transceiver 74, and is transmitted over the optical fibre. par. 0122).

As to claim 13, Dodds teaches the optical carriers are each formed by a respective optical transmission line (see claim 1 for optical carriers ***(the function of optical transmitter 45 and optical receiver 46 of fig. 1 or optical transceiver of fig. 4 indicates the presence of a carrier)*** connecting the data transmission means to at least one interface, located between the communications station and user terminations ***(field cabinet 17 is between the communications station and the user terminations),*** for converting optical signals from an optical carrier into electrical signals for transmission over one at least of the electrical transmission lines ***(optical transceiver converts optical to electrical signal, par. 0122. Also see figs. 2 and 4)).***

As to claim 14, Dodds teaches the communications station is a telephone exchange ***(POTS switching system 26 of network 29);***

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4-8 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dodds et al (US Pub 2002/0031113) in view of Bian et al

(High-Power Operation of Electro-absorption modulators, Applied Physics Letter, Vol. 83, number 17, received 11 April 2003 and accepted 8 September 2003).

As to claim 4, Dodds teaches the optoelectrical conversion means (***optical receiver 46 of fig. 2)*** and the electrooptical conversion means (***optical transmitter 45 of fig. 2).***

Dodds does not explicitly teach the optoelectrical conversion means and the electrooptical conversion means are together provided by an electro absorption modulator. Furthermore, Dodds does not explicitly discuss zero-bias photodiode.

It is well known in the art and as appreciate by the ordinary skilled artisans as it is pointed out by Bian et al that electroabsorption modulator (EAM) is, at least one of the EAM functions, to change the amount of light absorbed with applied electric field. The absorbing of light energy within an optical fiber is due to natural impurities in the glass. Absorption and scattering are the main cause of attenuation (signal loss) in an optical fiber. The EAM's advantages are included zero-bias voltage, low-driving voltage, high speed, and allowing a single optical power source to be used for large number of information carrying beams. ***(See Bian's entire document).***

Therefore, it would have been obvious to the ordinary skilled artisans at the time of invention was made to incorporate the teaching of Bian into the teaching of Dodds for the purpose of maximizing the use of EAM in the fiber

optical communication for their small size, low driving voltage, low chirp, and high bandwidth in the communication process.

As to claim 5, see claim 4 above for the capability of photodetecting of zero-bias voltage in the optoelectrical conversion process.

As to claim 6, Dodds, in view of Bian, teaches the optoelectrical conversion means is a semiconductor device ***(metallic conductor 23C and 23D),*** and including means ***(ground line 50)*** to draw power from the electrical transmission lines for providing power to the semiconductor device ***(the module 22 receives power through the fiber optic cable of the link 23 via metallic conductors 23C and 23D which connect to the ground line 50 and to a power line 51 respectively. The ground and power are thus provided to the module and to each of the individual components associated with the respective customers, par. 0112.)***

As to claim 7-8 and 10, see claims 4-6.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dodds et al (US Pub 2002/0031113) in view of Lee et al (US Pub 2007/0165688)

As to claim 9, Dodds teaches the electrooptical conversion means ***(optical transceiver of fig. 4 or optical transmitter 45 of fig. 2)*** and the communications station ***(POTS switching system 26 of network 29);***

Dodds does not explicitly teach the electrooptical conversion means is a Fabry Perot laser diode, and wherein the output wavelength of at the

electrooptical conversion means is determined by a seed wavelength fed from the communications station.

Lee teaches the Fabry Perot laser diode ***(par. 0014 and 0018).*** The optical transmitters may be modulated, wavelength locked using wavelength seeding, ***(par. 0057).***

Therefore, it would have been obvious to the ordinary skilled artisans at the time of invention was made to incorporate the teaching of Lee into the teaching of Dodds for the purpose of enhancing gain-bandwidth value to support wavelength locking over the system's effective operating range while maintaining a useable signal quality when the Fabry-Perot laser diode is modulated with the data stream ***(par. 0014).***

INQUIRY

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUNG-HOANG J. NGUYEN whose telephone number is (571)270-1949. The examiner can normally be reached on Monday to Thursday, 8:30AM - 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 571 272 7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CURTIS KUNTZ/
Supervisory Patent Examiner, Art Unit 2614

/Phung-Hoang J Nguyen/
Examiner, Art Unit 2614
Sept. 16, 2008